.45 MINUTEMAN SMG

EDITOR'S NOTE

When the subject of American-type homemade weapons is discussed it is only natural to think in terms of "back alley" zip guns, clubs, knives, etc. More sophisticated devices are usually associated with foreign countries and, more specifically, partisan or underground activity.

In the last few years, a lot of "how to" books and plans have emerged to an eagerly awaiting market whose motivation seems more educational than political. However, none of these weapons has ever equalled the Minuteman submachine gun.

The term "Minutemen" — relevant to the American Revolution — lay dormant between the covers of history books until the early 1950's when author Taylor Caldwell fictionalized a patriotic American underground group called the "Minutemen". It can only be speculated whether or not Caldwell's book spawned the "for real" Minutemen organization in the late 1950's.

This militant anti-communist underground organization operated, largely, as a "mail order" type distribution network for printed material consisting of training lessons and membership bulletins which contained a lot of how-to information. Probably the apex of their how-to efforts came in the form of a set of plans for a home constructed submachine gun.

Inspired by the thought that Americans might one day have to fight a "last ditch battle" and the fact that if the gun grabbers have their way, this fight might have to be conducted with improvised weapons, the Minuteman submachine gun was born in a basement in suburban Kansas City, Missouri in the mid-1960's. Touted by some as a weapon that could be constucted by anyone with simple hand tools for an expenditure of under $7.00, it raised the eyebrows of accomplished gunsmiths and engineers.

It was a simple design resembling the Sten in outward appearance. With open bolt slam firing, blowback action, full auto only and no safety, it used M3 Grease Gun magazines since it fired the .45 ACP cartridge. Yes, boys and girls, in those pre-MAC 10 days .45 ACP ammo and Grease Gun magazines were both plentiful and inexpensive.

Such a submachine gun design, surprising to many, is usually easier to "homebuild" than any semi-automatic weapon. The sear mechanism, typically, is no more complicated then the catch on your kitchen cupboard!

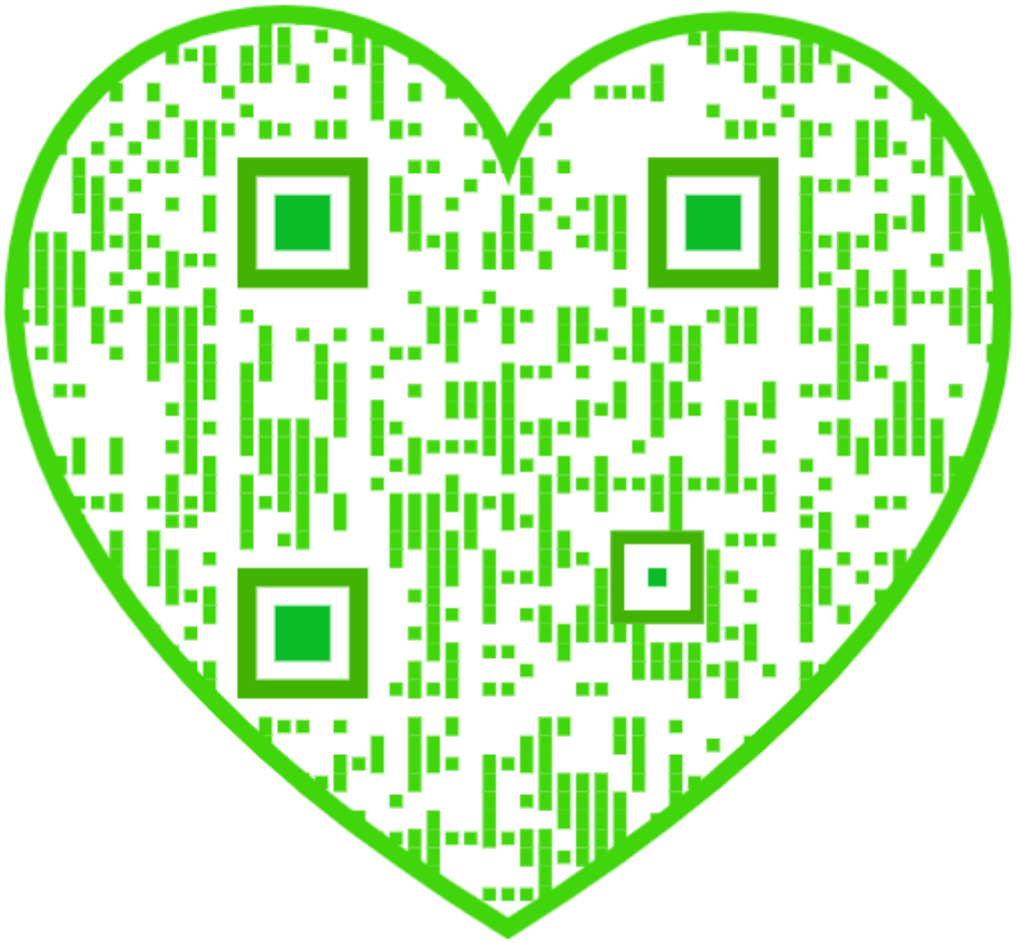
The curiosity and nostalgia attached to this particular weapon could no longer be ignored, so we assigned the task of actually building one to *FIREPOWER* staffer Gary Hill, who besides being a Master Machinist is, also, a Class II manufacturer. The result was most interesting. With only a few modifications, Gary produced a classic SMG with quality exceeding that of most factory made, "out of the box" weapons. It will even chamber and fire primed empty cases and will spit out anything in the way of live ammo that you care to stuff in the magazine to the tune of 1100 rounds per minute!

By Gary Hill

When I began building the Minuteman submachine gun based on plans from the famous manual, *Improvised Weapons Of The American Underground*, my original intention was to construct it exactly as specified in the original machinist's drawings. This was to be done in an effort to evaluate the basic design of the gun itself and then report the results to *FIREPOWER* readers. But as the manufacturing and assembly progressed, a few deficiencies were noted which required correction in order to build a reliable working prototype weapon. With these things in mind, the task evolved into one of constructing the parts as originally drawn and published except where design changes were necessary in order to make the gun function correctly.

I took this project one step further and added a few "custom" features which anyone building the gun might choose to include or delete according to personal taste. My reason for adding these features was to improve comfort, controllability and accuracy. Neither the original published plans nor my drawings presented here are all inclusive in regard to features which could be included on a weapon of this type, affording the home builder the opportunity to add his own "custom" features.

After having built and tested the prototype SMG, I was pleased with the final results and feel that this is a worthwhile endeavor for those readers who have the desire and resources to build it. If you have never built a complete firearm before, this is a good "first gun". The design is about as straightforward as you can possibly get. The weapon fires from an open bolt, is non-selective, and has no manual safety. There are not many parts to manufacture



The high cyclic rate of the Minuteman SMG is evident by the number of rounds of brass in the air at one time.

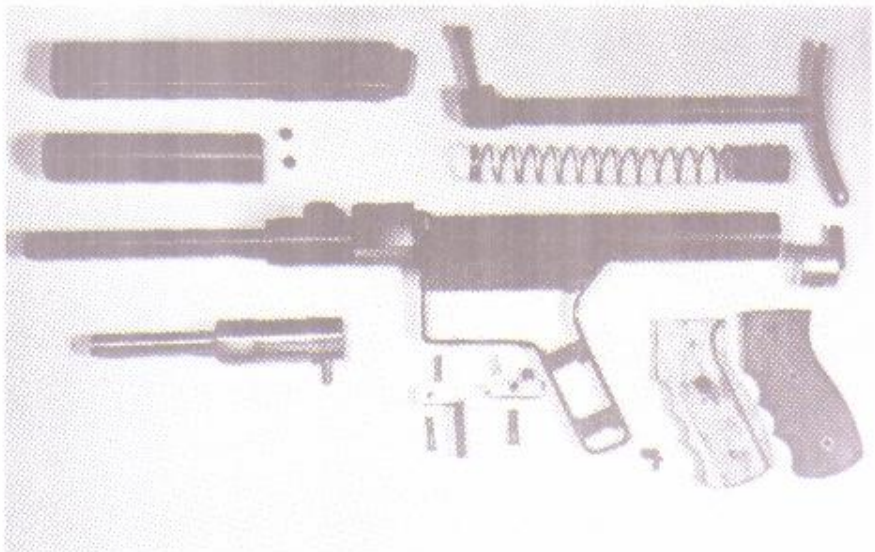
and wherever possible the dimensions allow a reasonable clearance between the parts to ensure free movement under dirty conditions.

If you don't have access to or a working knowledge of the use of a metal lathe, milling machine, drill press, etc., you can have a machine shop manufacture the components that you can't make yourself. One caution to remember, though, is not to build the receiver until after your approved BATF Form 1 comes back to you. At that time you can begin constructing the receiver.

I have seen some ridiculous advertising put out by a particular company which sells SMG plans similar to the Minuteman, claiming that the home builder can build one of their guns from scratch without using any machine tools such as a lathe, mill or drill press. Their idea of manufacturing tools consists of a hammer, file, hacksaw and hand drill. It makes me wonder if they have actually built a complete weapon from their plans, by hand (as they advertise). If so, did it function correctly? I won't say that this SMG can't be built entirely by hand, but to maintain your sanity I highly recommend that you not torture yourself by trying to do so! Leave the hand manufacture of guns to the boys in mud huts in Afghanistan, where it's almost a national pastime.

BUILDING THE COMPONENTS

I used *Improvised Weapons Of The American Underground* as the guide in constructing this SMG, and any parts which were manufactured strictly according to specs won't be detailed here.



The complete Minuteman SMG field stripped. You will note the original design was improved by adding a barrel shroud and wooden grips.

The original plans, as reproduced in the book "Improvised Weapons Of The American Underground", with minor modifications, were used to construct the Minuteman submachine gun.

An owner applied, organic finish such as "Arm Kote", c/o SIONAC, provides an ideal way to finish this SMG. Time not permitting, our gun was sprayed flat black for photographic purposes.

The parts which required modification, however, will be discussed here. This information will update and complete the original drawings from *Improvised Weapons Of The American Underground*, henceforth referred to simply as *Improvised Weapons*.

RECEIVER. In *Improvised Weapons*, the dimensions on the drawing for the receiver are incomplete. The revised drawing which shows the actual dimensions used in constructing the receiver is included in this article. The receiver is constructed of 1-3/8" OD x .065" wall thickness, DOM (drawn over mandrel), 4130 seamless steel tubing. The magazine housing and trigger frame are welded onto the receiver tubing. When doing this, care should be taken so as not to excessively overheat large areas of the tubing since warpage will result, causing misalignment of the bolt face and chamber. Heli-arc welding was used in assembling the Minuteman because of its good strength and neat appearance.

TRIGGER & SEAR HOUSING (Frame) & GRIP. The frame houses the trigger and sear, and is welded directly to the bottom of the receiver. This part will work exactly as drawn in the manual, but I shortened the overall length in order to reduce bulk. The modified trigger guard is still very large and can easily accommodate a gloved hand for winter firing. I personally would shorten the trigger guard, trigger and grip frame in order to be more compact.

The frame as drawn in the manual makes no provision for grip panels, so to improve comfort in firing I added two 1/2" x 1/2" steel spacers, welded in the grip as shown, to which a two piece wooden grip was then attached. The grip panels are held in place by two No. 10-32 x 1/2" long button head cap screws which screw into No. 10-32 threaded holes in the spacers. Any suitable hardwood or other material can be used for the grip panels, which can be shaped to fit the firer's hand if desired. For that matter, the grip itself could be modified to take standard .45 auto stocks if that's what the builder wants.

LOADING RAMP & BARREL ALIGNMENT PLUG (Barrel Bushing). The first barrel bushing for our prototype was made as per the drawing in *Improvised Weapons*, being constructed of aluminum and attached to the receiver using four No. 10-32 screws. This was tested and after about 100 rounds, the screws loosened in the barrel bushing, allowing the bushing and barrel to slam forward every time the bolt fed a live round into the chamber. The .45 ACP round headspaces on the case mouth, and the inertia of the forward slamming bolt forced the loosened screw threads to dig into the receiver through which they passed, elongating the screw holes on each stroke. This movement of the bushing and barrel eventully caused malfunctions until the assembly was pushed rearward to it original position and the four screws re-tightened.

To correct this ailment, a new barrel bushing was constructed of steel

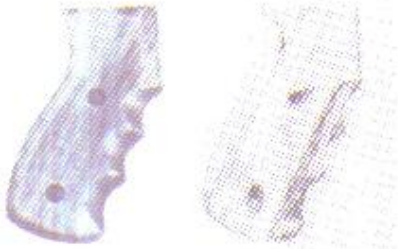
The original design didn't provide a barrel shroud. This necessitated holding the weapon by the magazine. The result: muzzle rise.

One criteria for good SMG design is the capability of being effectively handled by a woman. Here Linda, one of the FIREPOWER Mamas, cuts loose with the Minuteman SMG.

which was then welded in place in the receiver. The bushing was also modified by having a 1-3/8" diameter flange and a 1-1/4" OD extension in front of this flange onto which a ventilated handguard was positioned. After insuring correct alignment of the feed ramp and extractor clearance slot, the bushing can be welded in place in the flange/receiver area. On this particular gun the two side screw holes and one on the bottom side of the receiver were filled in with a deep penetrating weld in lieu of welding the flange to the receiver. The top screw hole in the barrel bushing and receiver are retained in order to attach a front sight.

VENTILATED HANDGUARD. After test firing the original gun, it was apparent that some provision needed to be made to hold onto the gun with the left hand, forward of the magazine housing, in order to have better control of the weapon during automatic firing. A ventilated handguard was then made using a 6" section of the same size tubing used in the receiver construction. This has a bushing welded into the front end which fits over the barrel. The rear end slides over the 1-1/4" diameter boss on the barrel bushing, and is attached with two No. 10-32 button head cap screws. A total of fourteen 1/2" diameter holes were drilled into the handguard to help dissipate heat build-up. The size of the holes and total number used aren't really important, just so there is plenty of ventilation for the air-cooled barrel.

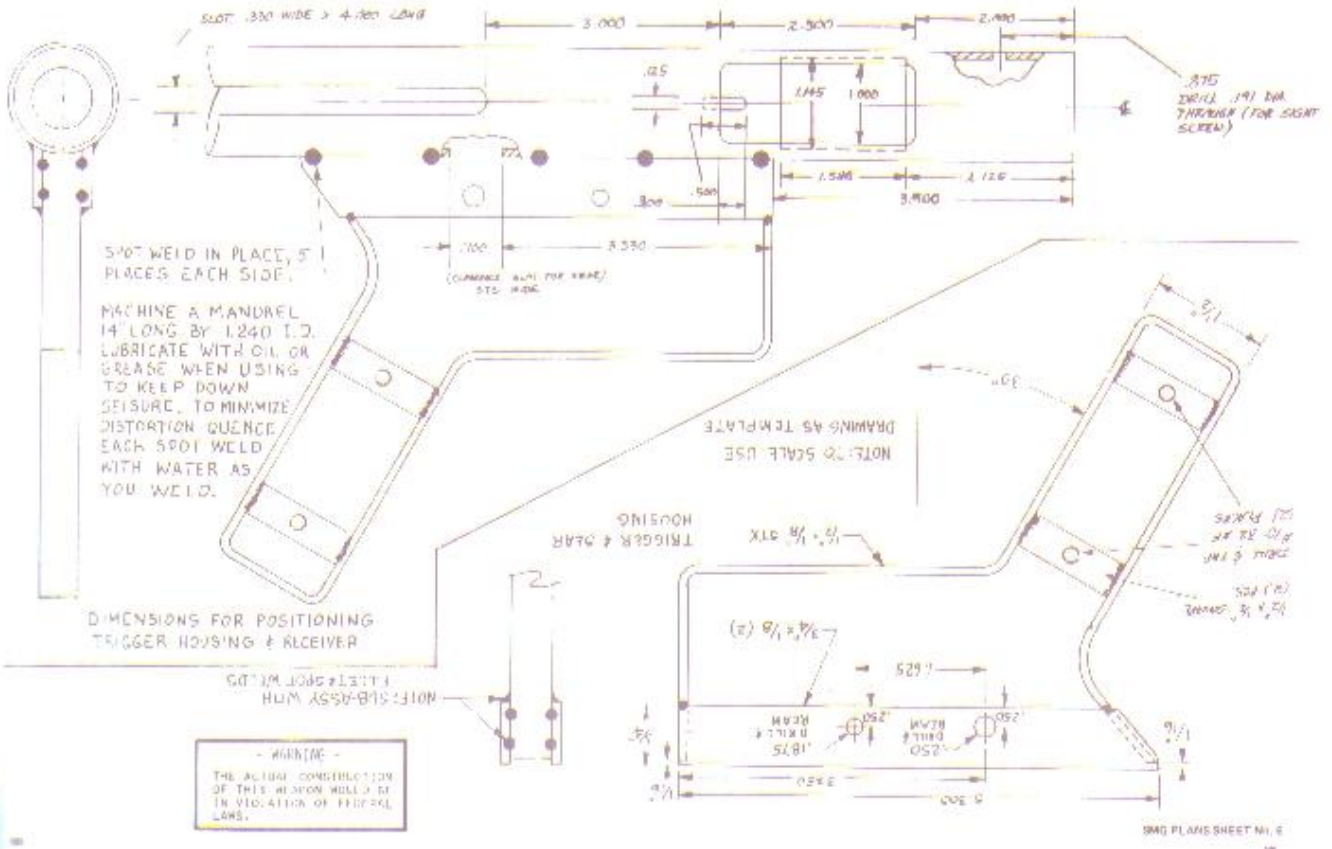
Finished receiver assembly. The original aluminum barrel bushing was replaced by one machined from 4130 steel. For improved structural strength, it was welded in place. Also, two grip mounting blocks were added to the frame for attaching wooden grips.



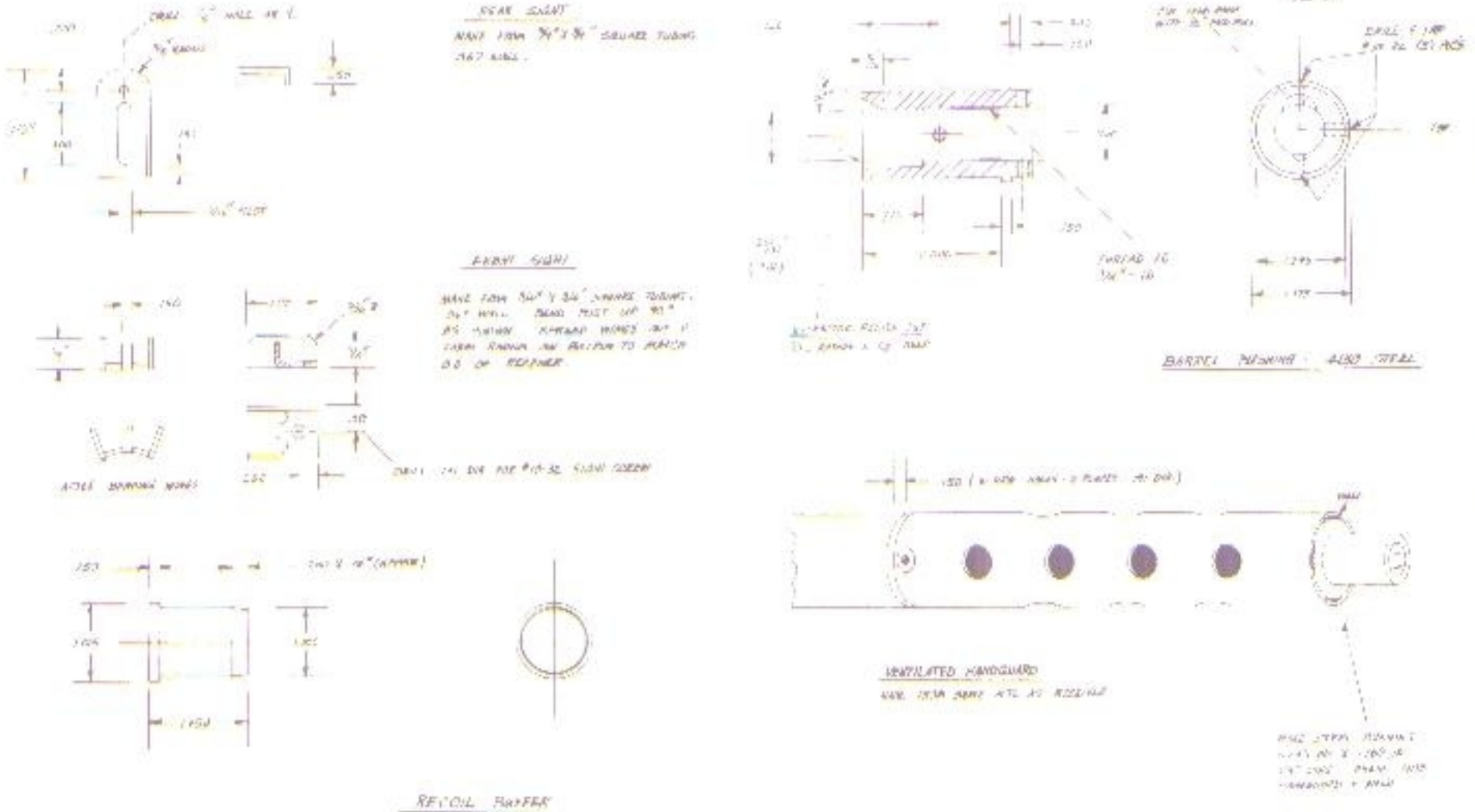
Wooden grips (stocks if you prefer) were neatly fitted to the frame.

The original design buttstock is shown above.

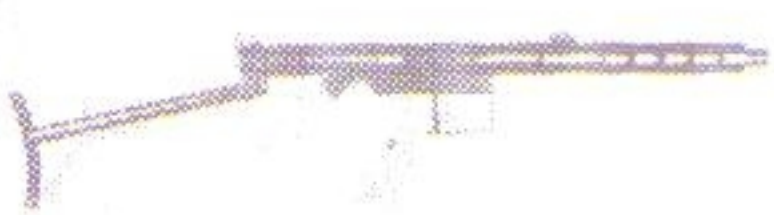
TRIGGER. The trigger as drawn in *Improvised Weapons* will work in this gun, but when the bolt is resting in the forward position the trigger will flop back and forth since the sear/sear spring



Updated dimensions for locating receiver and trigger housing.



Minuteman parts revised or added by the author.



Adding a barrel shroud made the Minuteman far more controllable.

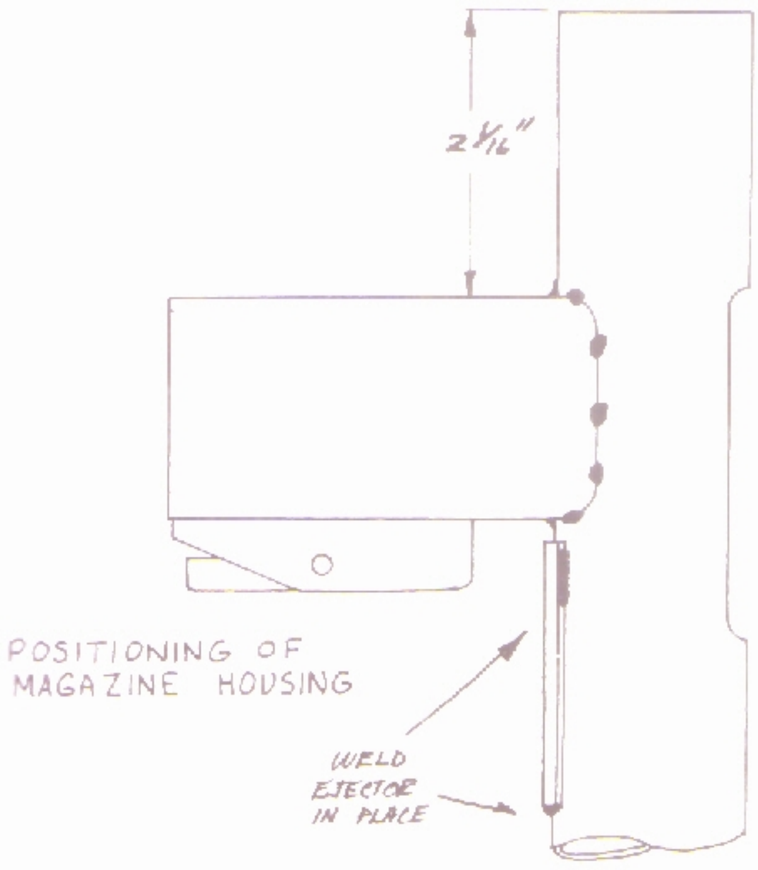
The finished Minuteman SMG and removable stock. In the final design, an elastic stop nut secures the retaining block in the end of the receiver.

tension is off of it. To correct this, a hole .250" diameter x 3/8" deep was machined into the rear of the trigger to accept a 1/4" OD x 3/4" long return spring. This keeps tension on the trigger at all times, eliminating the "flopping" movement. Since the flat trigger has a tendency to pinch the trigger finger against the trigger guard, a shorter, curved trigger would also be an asset.

BOLT & RECOIL SPRING. For whatever unknown reasons, the gun design in *Improvised Weapons* specifies a recoil spring which is wound to two different diameters. This is virtually unnecessary and makes finding a ready made commercial spring almost impossible. Also, no specs are given as to wire

The barrel shroud was made from the same steel tubing used for the receiver.

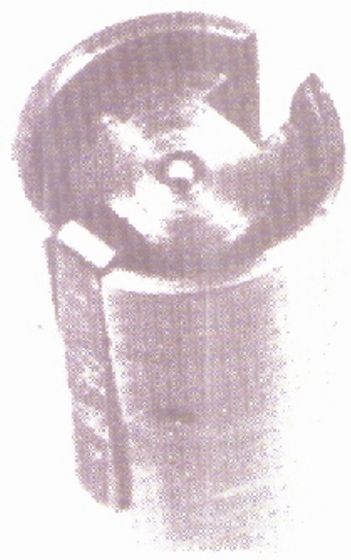
The breech block reflects both Sten and Thompson influence.



New location of magazine housing.

diameter, pitch or length. The spring used in our prototype is made of .063" diameter wire, 2 coils per inch, 1-1/8" OD x 8-3/4" free length.

The counter bore in the rear of the bolt (referred to in the drawing as the breech block) as drawn in the manual is deleted, as well as the angle on the bottom rear of the bolt which isn't needed since in the forward bolt position the sear is still below the bolt, not behind it. If the bolt had completely passed the sear on the forward stroke, the lead angle would be necessary to guide the spring-loaded sear downward as the bolt rebounds.

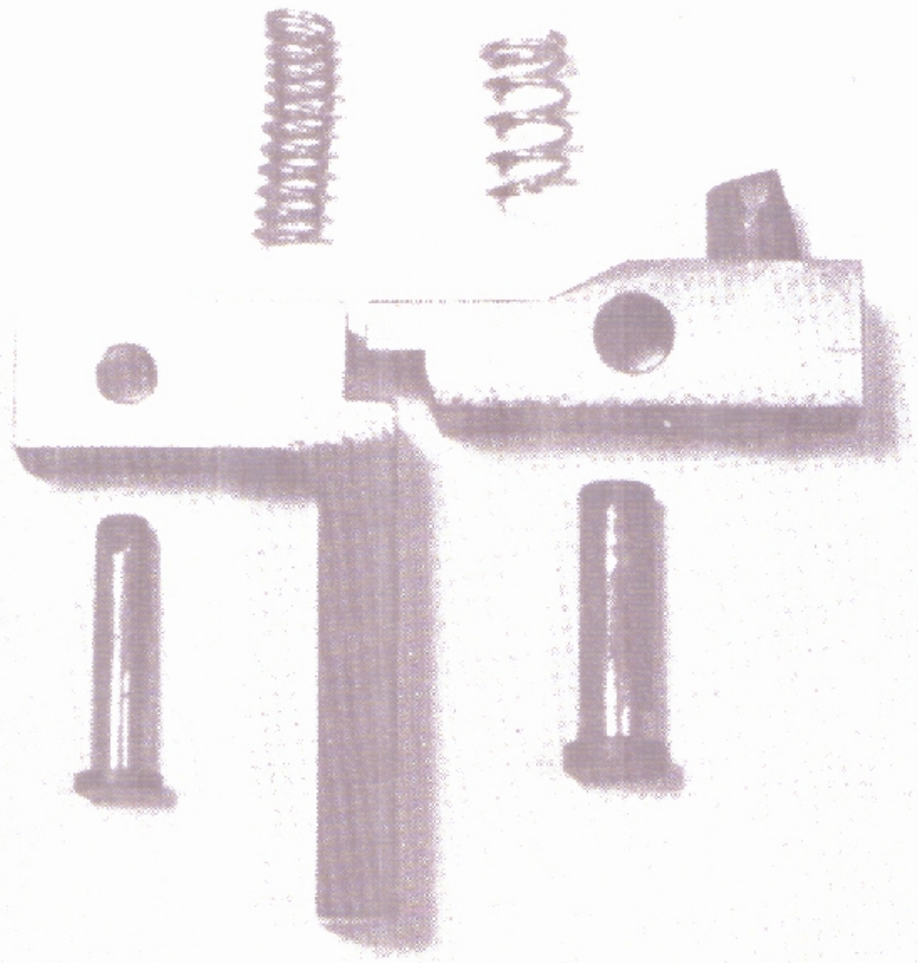


The bolt face/feed ramp combination allowed feeding and firing primed empties!

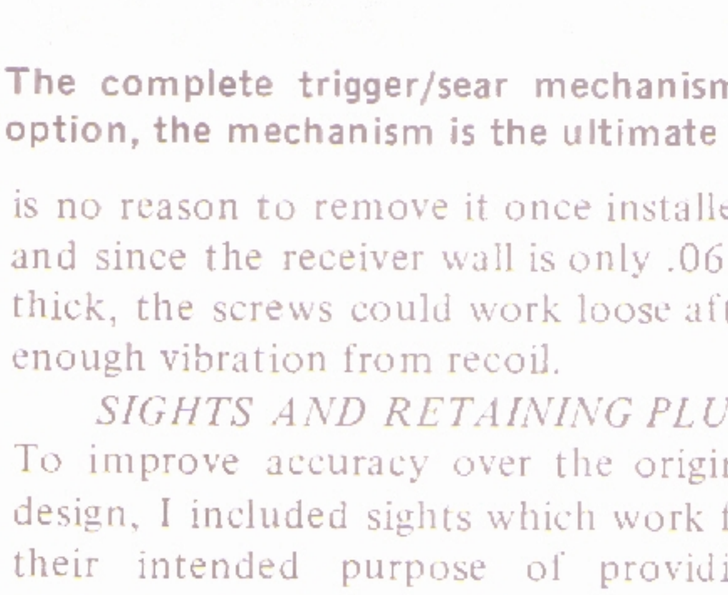
RECOIL BUFFER. A Urethane recoil buffer was made to cushion the rebounding bolt after it was found that the cocking handle would beat the receiver slot when the gun was fired. Firing the first 30 round magazine caused damage to the rear of the cocking handle slot, which would eventually present a severe problem. The buffer fits snuggly into the rear of the recoil spring and eliminated any further damage to the receiver. Adding this buffer noticeably increased the cyclic rate since the bolt rebounds harder after hitting the semi-elastic material. Urethane is an extremely tough and durable rubber and should last the lifetime of the weapon.

EJECTOR. I used the two piece ejector as drawn in the manual, but chose to weld the ejector in the receiver rather than use the two screws as drawn. The reason for this is that there is no reason to remove it once installed, and since the receiver wall is only .065" thick, the screws could work loose after enough vibration from recoil.

SIGHTS AND RETAINING PLUG. To improve accuracy over the original design, I included sights which work for their intended purpose of providing quick target reference. The front sight is made from 3/4" x 3/4" square tubing, and attaches to the receiver with a No. 10-32 screw. This sight is located on top of the receiver directly over the barrel bushing. The screw hole is one of the four original barrel bushing/receiver locking screw positions. The rear sight is also made from the same material as the front, and is attached to the rear of the aluminum retaining plug with two No. 10-32 x 3/8" button head capscrews. This rear sight is adjustable for elevation by loosening the screws and moving the sight up or down. For windage, the screw on the front sight can be loosened and the sight moved left or right as needed. This requires that the hole through the sight be slotted to move from side to side.



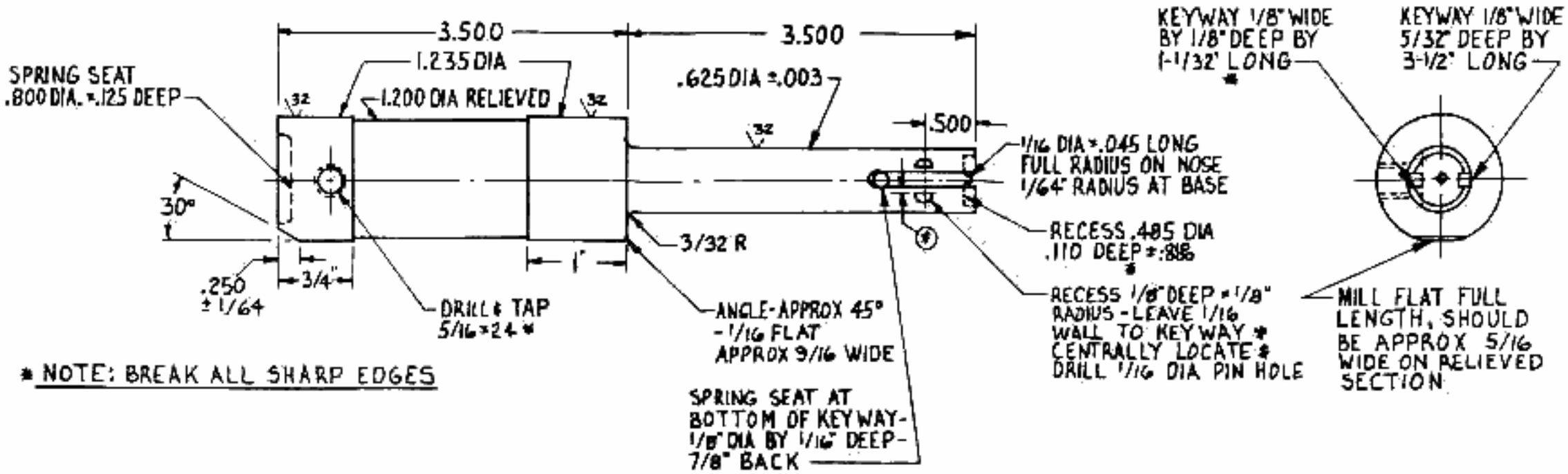
The complete trigger/sear mechanism. Being devoid of a safety and select fire option, the mechanism is the ultimate in simplicity.



Close-up view of rear sight which was added to the retaining lug.

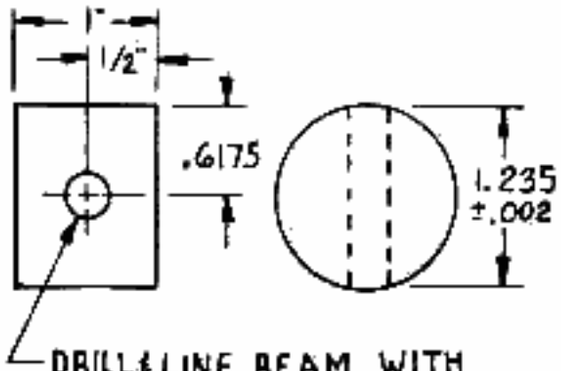
MAGAZINE HOUSING SUPPORTING TABS. Although this is not a common practice in manufacturing submachine guns, the magazine housing on the Minuteman is reinforced in its assembly to the receiver by adding a bracing tab to both sides of the magazine housing and adjoining receiver. The two tabs are welded to the magazine housing and onto the receiver wall. This last feature may be used or deleted according to individual preference.

For a "homemade" submachine gun, the Minuteman shot surprisingly well, and it's certainly a lot more unusual than the black powder kits that many shooters have assembled. But in either case, it's still individual preference that dictates which is actually more fun — building the gun itself or shooting it after it's finished.

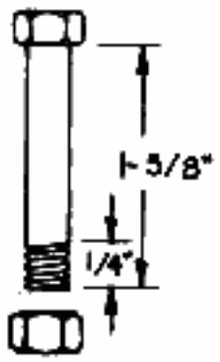


* NOTE: BREAK ALL SHARP EDGES

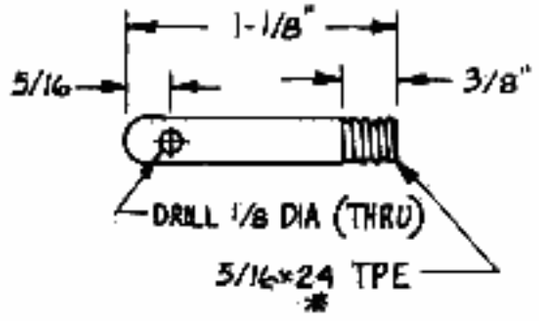
BREECH-BLOCK INTL-HRS/ C/HARDEN .010-.015 DEPTH



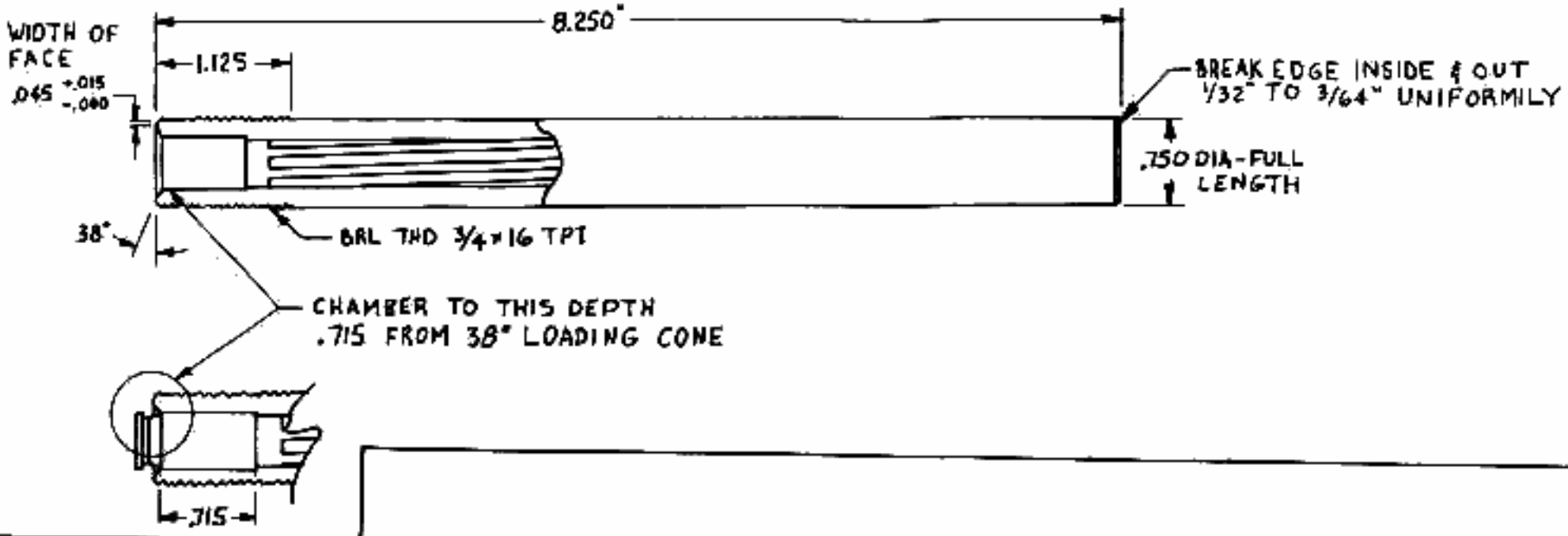
RETAINING PLUG - MTL 6061-T6 ALUM

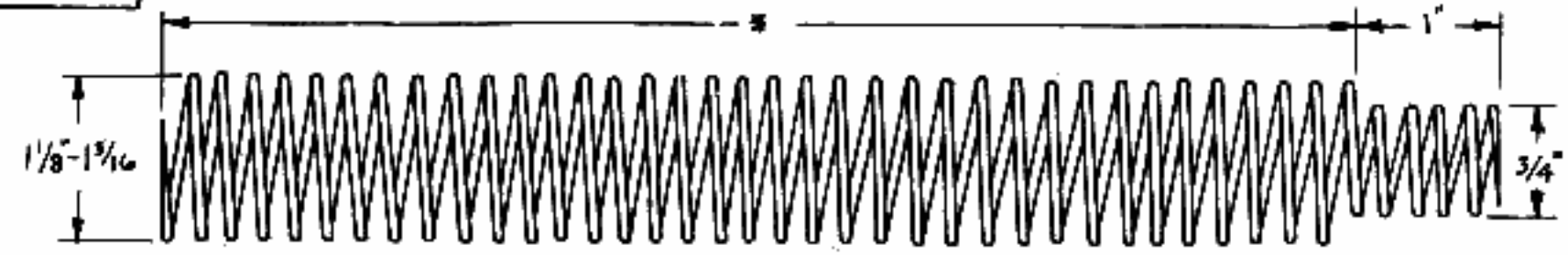


RETAINING PLUG BOLT & NUT
5/16×18 STL PURCHASED
(HEX HEAD) & NUT - SELF LOCKING

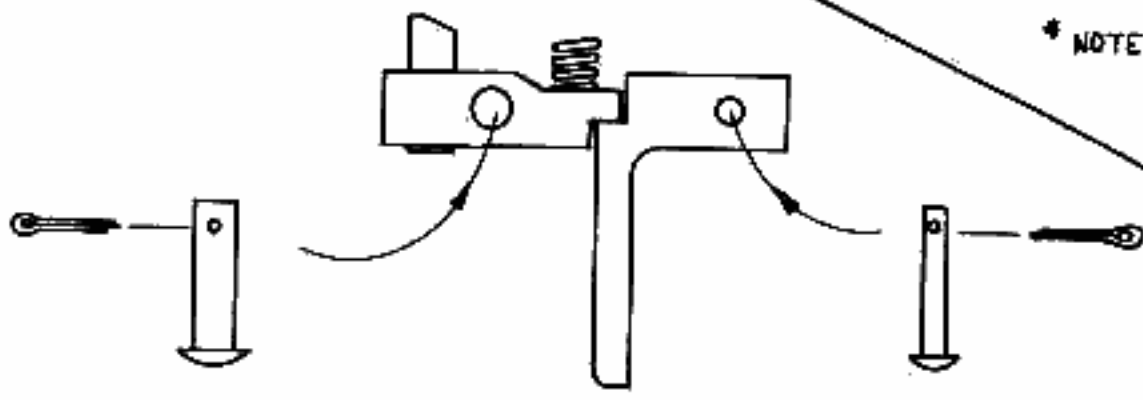


COCKING KNOB - MTL 5/16 BOLT-STL





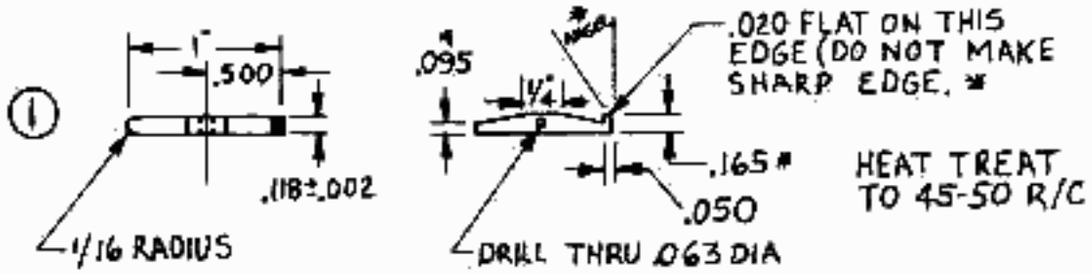
THRUST SPRING-STL-NON-FATIGUING (PURCHASED)



ASSEMBLY OF TRIGGER & SEAR IN PROPER RELATION WITHIN HOUSING

* NOTE: LENGTH OF SPRING & TENSION WILL HAVE TO BE ADJUSTED - DEPENDING ON TYPE SPRING USED SHOULD BE APPROX 9 1/2" LONG

* EXTRACTOR, PIVOT PIN & SPRING (INT'L STEEL)



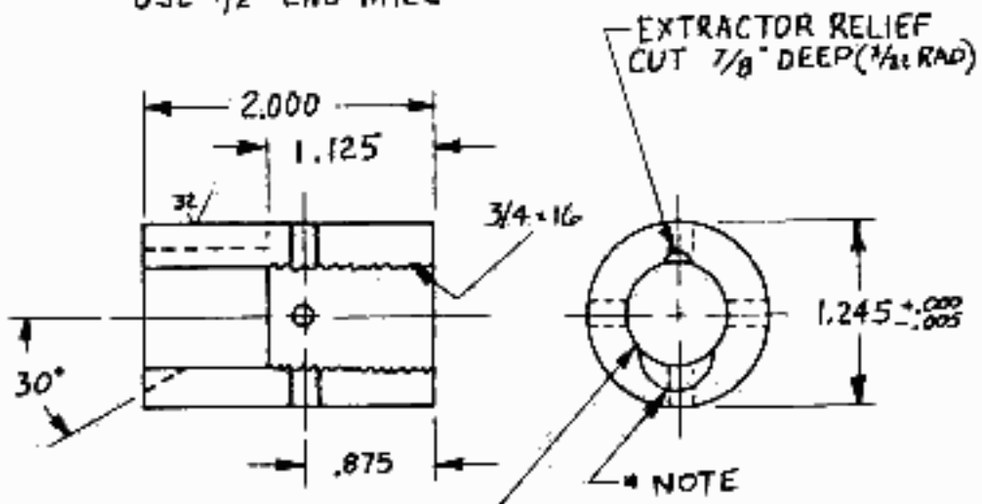
①

NOTE: THIS PART MIGHT REQUIRE SOME HAND FITTING - (1/32"-3/64" LIP TO SNAP INTO EXTRACTOR GROOVE IN CASE)

② *EXTRACTOR PIN .062 DIA. × .275 LONG (STL)

③ *EXTRACTOR SPRING .110-.120 DIA. × 1/8" LONG

*NOTE: LOADING RAMP CUT USE 1/2" END MILL

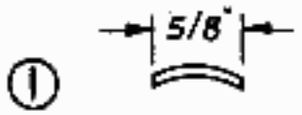


THIS SERIES OF HOLES (4) LOCATED 90° APART — THE ONE LOCATED 180° FROM THE 30° CUT, IS THE BARREL LOCK SCREW AND HAS TO BREAK THRU. (4) DRT #10-32

NOTE: DRILL THRU WITH 23/32" THREADED SECTION WILL NOT HAVE FULL DEPTH OF THREAD - BUT SUFFICIENT

LOADING RAMP & BARREL ALIGNMENT PLUG - MTL 6061-T6 ALUM

EJECTOR ASSEMBLY, MTL STL



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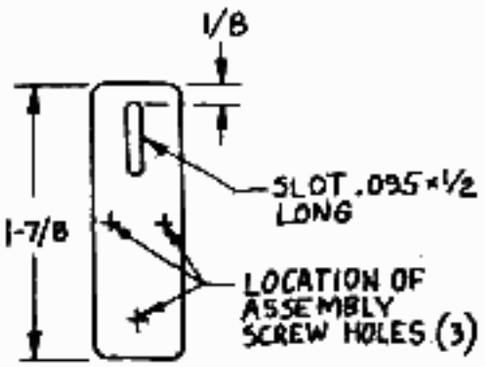

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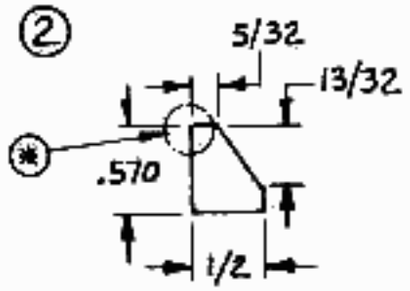
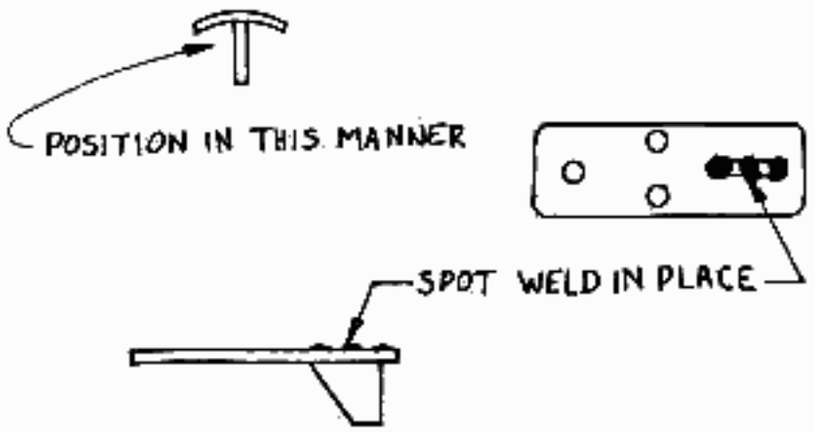
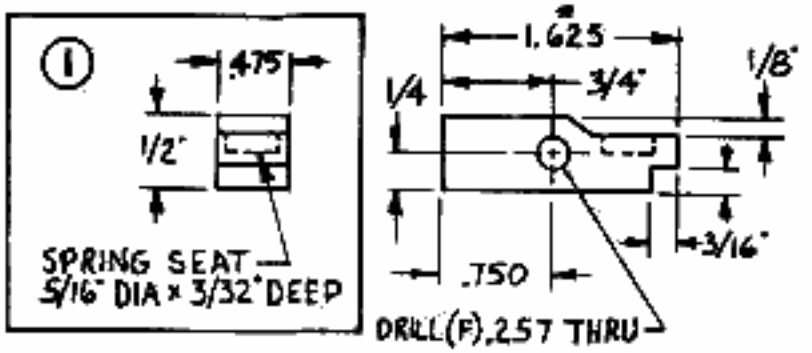


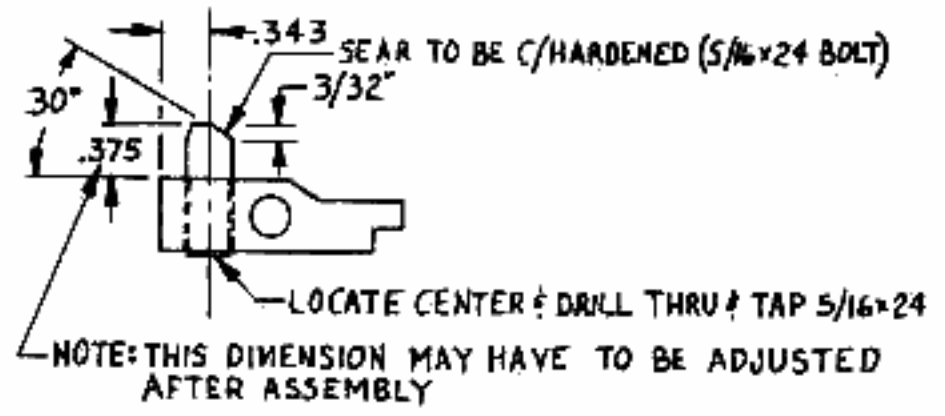
① THIS PART CAN BE MADE FROM THE SAME TUBING AS THE HOUSING (THE RADIUS WILL FIT)

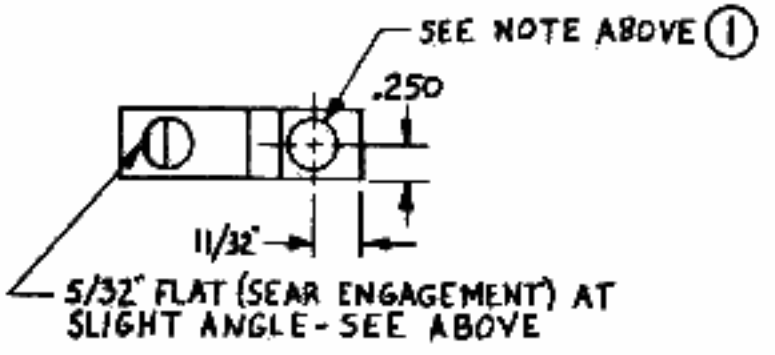
② THIS PART OF (.095) FLAT STOCK HARDENED OR CASE/HARDENED AS NOTED (*)



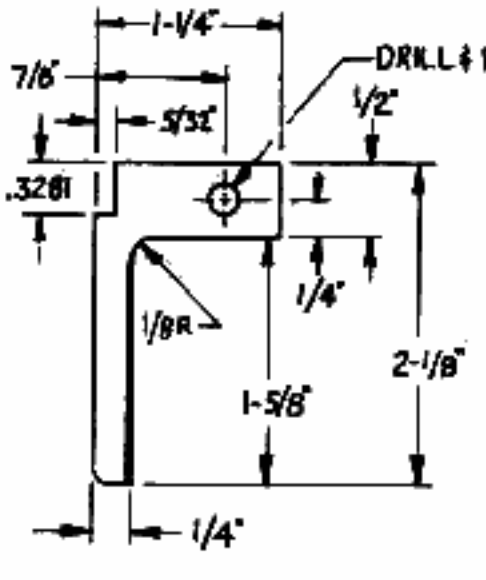
SEAR, SEAR PIVOT PINS & SPRING
STL MILD 1/2" x 1/2"

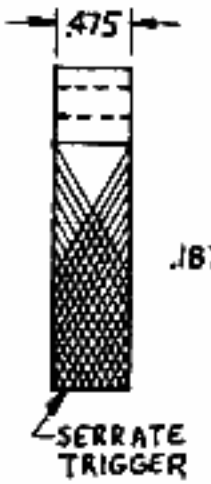


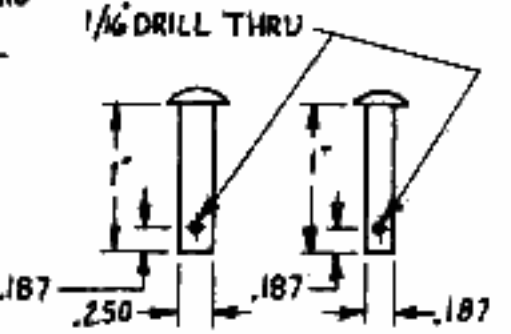

.343
SEAR TO BE C/HARDENED (5/16x24 BOLT)
30°
3/32"
.375
LOCATE CENTER & DRILL THRU & TAP 5/16x24
NOTE: THIS DIMENSION MAY HAVE TO BE ADJUSTED AFTER ASSEMBLY



TRIGGER-MTL-ALUM 6061 FLAT SLK

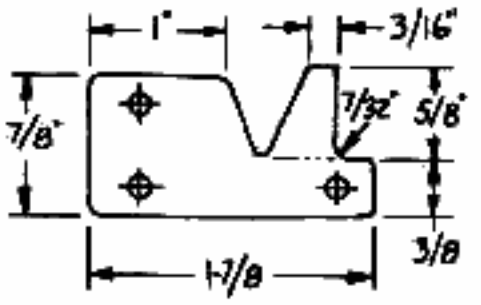






(2) COTTER PINS 1/2"x1/16" DIA.
(1) SPRING PURCHASED 15/64" DIA x 5/8" LONG

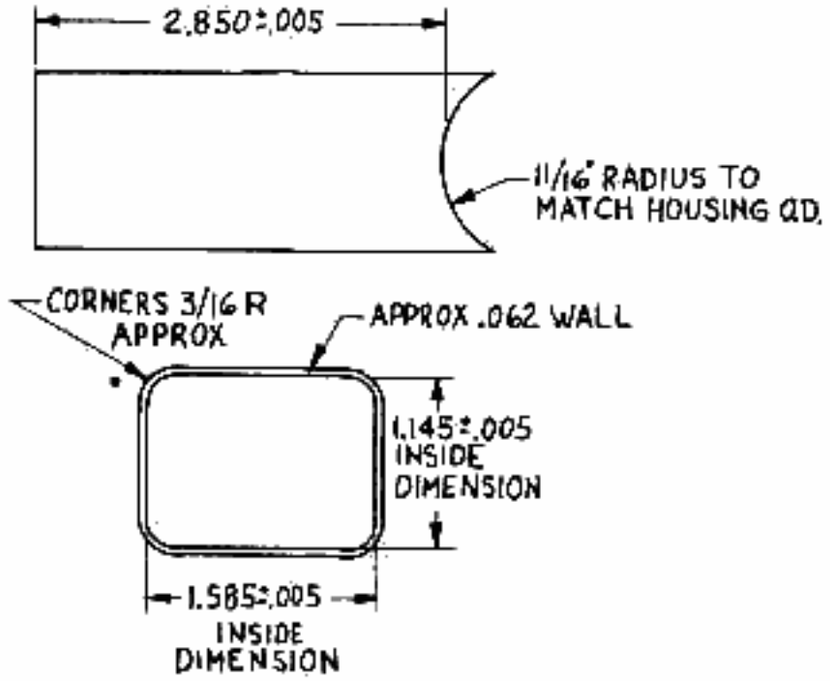
EJECTOR - 1/16" THICK SHEET METAL. CAN BE CUT FROM SAME MATERIAL AS HOUSING, AS RADIUS MATCHES



BEND DOWN ALONG DOTTED LINE 90°

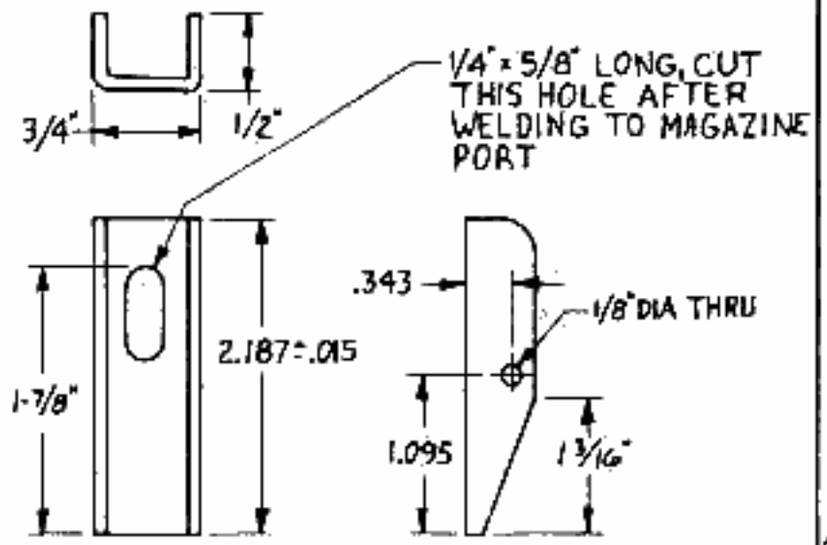
(3) CLEARANCE HOLES FOR 6-32 SCREWS, APPROX IN THE ABOVE LOCATIONS. SCREW LENGTH FROM HEAD 1/8" LONG.

MAGAZINE HOUSING, MTL. .062 SHEET METAL

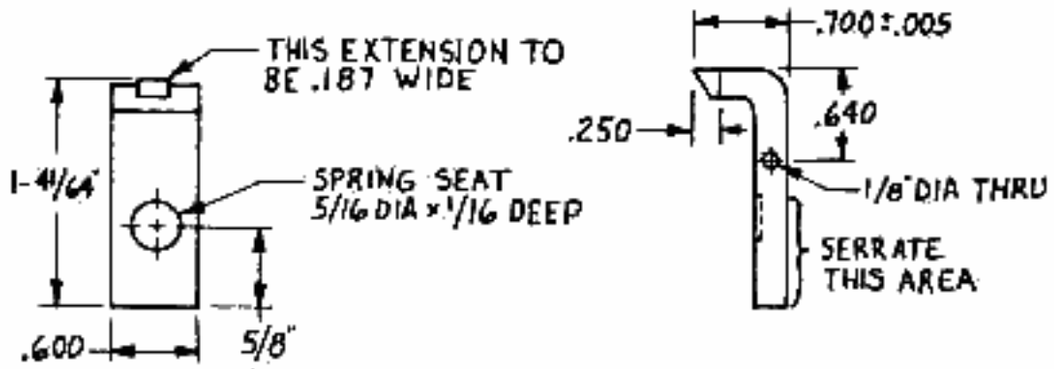


WILL WORK VERY WELL CONSTRUCTED IN THIS THIS MANNER, BY SPOT WELDING PLATE ALONG SIDES (FULL LENGTH)

MAGAZINE RELEASE, STL.

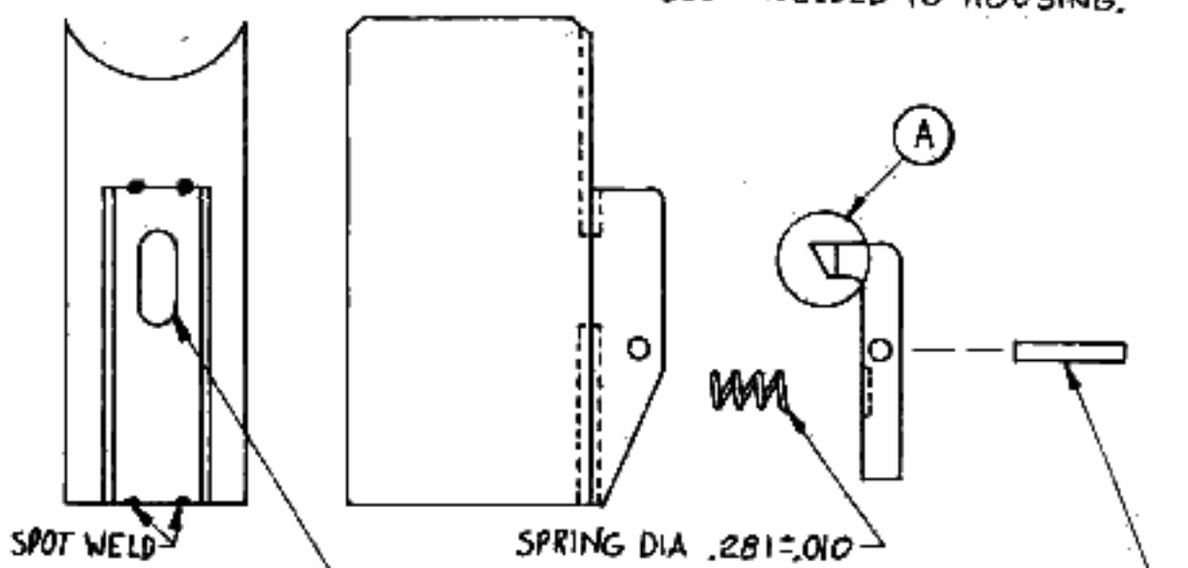


NOTE: CAN BE MADE FROM 3/4×3/4 SQ. TUBING

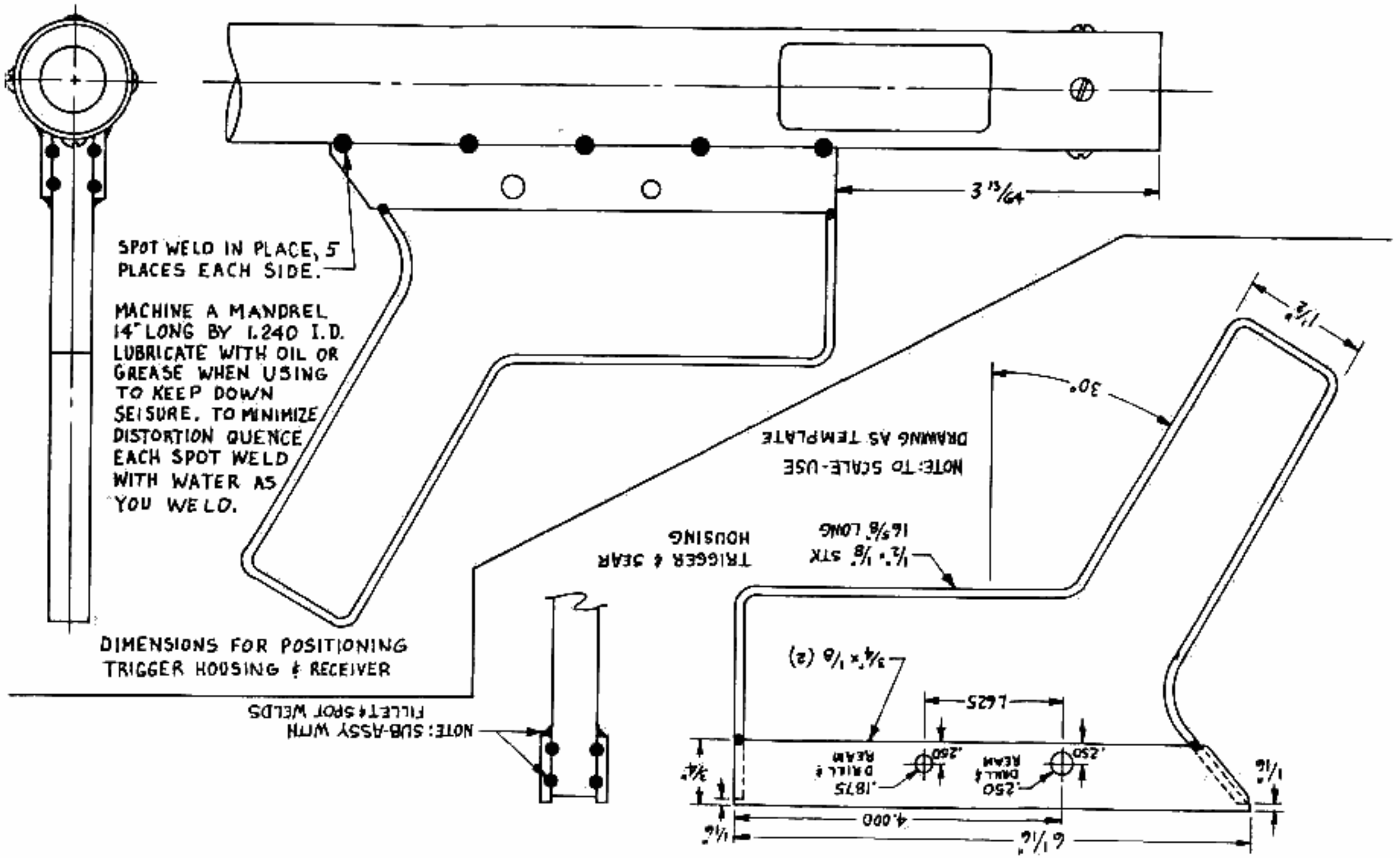


ASSEMBLY OF MAGAZINE HOUSING & MAGAZINE RELEASE

(A) IT PROBABLY WILL BE NECESSARY TO DO SOME ADJUSTING OR HANDFITTING HERE TO GET THE PROPER FIT, AND AMOUNT OF ENGAGEMENT — BUT ONLY AFTER MAGAZINE HOUSING HAS BEEN WELDED TO HOUSING.



AFTER SPOT WELDING THESE (2) PARTS TOGETHER, BREAK THRU BOTH PARTS.


SPOT WELD IN PLACE, 5 PLACES EACH SIDE.
MACHINE A MANDREL 14" LONG BY 1.240 I.D. LUBRICATE WITH OIL OR GREASE WHEN USING TO KEEP DOWN SEIZURE. TO MINIMIZE DISTORTION QUENCE EACH SPOT WELD WITH WATER AS YOU WELD.
3 13/64
DIMENSIONS FOR POSITIONING TRIGGER HOUSING & RECEIVER
NOTE: SUB-ASSY WITH FILLET & SPOT WELDS
NOTE: TO SCALE-USE DRAWING AS TEMPLATE
30°
3/4"
1/2" x 1/8" STK
16 5/8" LONG
TRIGGER & SEAR HOUSING
3/4" x 1/8 (2)
.625
.250 DRILL & REAM
.1875 DRILL & REAM
.250
3/4"
1/16"
4.000
6 1/16"
1/16"

SMG PLANS SHEET No. 6

9-9½" LONG × 3/4" DIA TUBING × 1/8" WALL

1½"

1"

1½"

11/16" R RADIUS TO MATCH TUBE

DRILL & TAP FOR 5/16"-18 BOLT

FRONT VIEW

5½" LONG × 1" WIDE × 1/8" THICK

WELD BOTH ENDS

SHOULDER STOCK ATTACHMENT - STEEL OR ALUM

2.075

1/2

CUT OUT FOR SLING

90°

SPOT WELD 2 OR 3 - FRONT & BACK

POSITIONING OF MAGAZINE HOUSING

SMG PLANS SHEET No. 7